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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,184

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Hong Cheng

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EXAMINER

BYRD JR., JOHN B

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,184	Applicant(s) CHENG ET AL.	
	Examiner JOHN B. BYRD JR.	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/10/2007, 08/30/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-16, and 23-31 are rejected under 35 U.S.C. 102(b) as being anticipated by *Dehner et al* (2003/0035464 A1) (hereinafter *Dehner*).

Regarding **claim 1**, *Dehner* discloses a system for providing service in a wireless local area network comprising:

i. a single or plurality of wireless access points (WAP) capable of processing a subset of complete functionality defined for the wireless local area network (=see Fig. 1, and par.[0012]);

ii. a single or plurality of control nodes (CN) capable of providing a subset or complete functionalities defined for the wireless local area network (=see Fig. 1, items 143, and 163; and par.[0017]); and

iii. negotiation means for the wireless access points to dynamically negotiate with the control node for a secure connections and function split arrangement (=see par.[0019] and par.[0020], wherein being established as the “master and slave” reads on negotiation means, and NAP, item 103, reads on negotiation means);

whereby, in use, the control node would negotiate with the WAPs using the negotiation means and provide same or different complementary functionality for each of the WAPs to form a complete functionality defined for the wireless local area network according to decision of the negotiation means (=see par.[0019], par.[0020], and par.[0039] wherein the “NAP” and “controller” different complementary functionality is taught).

Regarding **claim 2**, *Dehner* discloses a system according to claim 1 wherein said wireless access point and control nodes further comprise logically independent functional components of the functionalities defined for the wireless local area network with predefined interface used between each functional components (=see par.[0039]).

Regarding **claim 3**, *Dehner* discloses a system according to claim 2 wherein interfaces between said functional components could be used over remote connections between said wireless access point and control node (=see par.[0023], wherein the “NAP” reads on the wireless access point and the “controller 143” reads on the controller).

Regarding **claim 4**, *Dehner* discloses a system according to claim 1 wherein each said control node further comprises a control node controller module (=see Fig.1, item 143 reads on control node, and item 111, reads on control node controller) and

each said wireless access point further comprises a wireless access point controller module (=see Fig.1, item 103, reads on wireless access point, and item 143, reads on a wireless access point controller module).

Regarding **claim 5**, *Dehner* discloses a system according to claim 4 wherein the controller module of control node further comprises a single or plurality of processing schedules composed of sequential lists of descriptors for subsets of functional components used for each wireless access point (=see Fig.7, wherein the flowchart of tasks reads on the lists of descriptors).

Regarding **claim 6**, *Dehner* discloses a system according to claim 4 wherein the controller module of wireless access point further comprises a single or plurality of processing schedules composed of sequential lists of descriptors for subsets of functional components used for each associated mobile terminal (=see Fig.7, wherein the “signal quality” versus the listed threshold is and example stated herein that reads on the descriptors for subsets).

Regarding **claim 7**, *Dehner* discloses a system according to claim 1, wherein the wireless access point further comprises:

- i. means for discovering the available control node within a specified domain (=see par.[0019] and par.[0020]); and
- ii. means for negotiating secure connection with control node that could offer the desired functions (=see par.[0022], wherein the “ID” provides a means for secure connection);

whereby, in use, the wireless access point is able to locate the control node that provides necessary complementary functionalities with regard to a set of defined complete wireless local area network functions with the means for discovering and

establishing secure connection with the control node with the means for negotiating (=see par.[0024]).

Regarding **claim 8**, *Dehner* discloses a system according to claim 1, wherein the controller module of said control node is capable of generating data unit to resemble that from a mobile terminal (=see par.[0020], wherein the CU reads on the mobile terminal).

Regarding **claims 9 and 25**, *Dehner* discloses a system for load balancing in a wireless local area network (WLAN) without requiring association handover at a mobile terminal comprising:

i. a single or plurality of mobile terminals, each said mobile terminal associated with and receiving services from a single or plurality of wireless access point (WAP) (=see par.[0012], wherein the CU reads on the mobile terminal);

ii. a single or plurality of wireless access point that are capable of processing data units received from the mobile terminal or other wireless access point using a subset of defined WLAN functions (=see par.[0012], wherein it is understood to perform the communication cited herein reads on subset of defined WLAN functions); and

iii. means for the wireless access points to exchange data units processed with a subset or complete defined WLAN functions (=see par.[0047], wherein the CU and the WAP exchange data);

whereby a data unit for a mobile terminal is processed with complete WLAN functions by a single or plurality of WAPs where each WAP processes the data unit with

only a subset of complete WLAN functions (=see par.[0047], wherein the CU and the WAP exchange data).

Regarding **claims 10 and 26**, *Dehner* discloses a system according to claim 9 wherein the wireless access point further comprises a control module that is capable of negotiating with other wireless access points for a subset of the complete WLAN functions to be carried out at each wireless access point (=see par.[0017]).

Regarding **claims 11 and 27**, *Dehner* discloses a system according to claim 9 wherein the wireless access point further comprising a local database that stores all the associations of the mobile terminals attached to said wireless access point and corresponding subset of the complete WLAN functions to be provided to the mobile terminal (=see par.[0034]).

Regarding **claim 12**, *Dehner* discloses a system according to claim 1, wherein the functionalities of said WAP and CN collocate in a single network element (=see Fig.1, and par.[0017]).

Regarding **claims 13 and 29**, *Dehner* discloses a method for providing service in a wireless local area network (WLAN) that allows defined WLAN function split between wireless access point (WAP) and a single or plurality of Control Node (CN) comprising the steps in which:

- i. a WAP discovers the CN that may provide complementary WLAN functions by sending a single or plurality of messages containing information about its own subset of WLAN functions to all the CN (=see Fig.7, and par.[0011]);

ii. a CN after receiving said discover message replies with a single or plurality of messages containing information about a subset of WLAN functions said CN could offer to the WAP (=see Fig.7, item 713); and

iii. said WAP chooses from all the replied CNs a proper CN based on local policy and establishes association with said chosen CN (=see Fig.7, item 717).

Regarding **claims 14 and 30**, *Dehner* discloses a method for the WAP to decide which CN to use according to claim 13 using information, the information comprising:

- i. the subset of the WLAN functions offered by the CN (=see Fig.7);
- ii. a cost of using the CN (=see Fig.7);
- iii. a vendor of the CN (=see Fig.7);
- iv. a characteristics of the connection to the CN (=see Fig.7); and
- V. a weighted sum of the above factors (=see Fig.7).

Regarding **claim 15**, *Dehner* discloses a method for providing service in a wireless local area network (WLAN) that allows defined WLAN function split between wireless access point (WAP) and a single or plurality of Control Node (CN) comprising the steps in which:

i. a CN dynamically discovers the capability of a WAP by sending a single or plurality of messages to a WAP containing a section that emulates a data unit sent by a mobile terminal (=see par.[0019], wherein the “respond with message” reads on the message to WAP);

ii. a WAP receives said message, processes said section using the same procedure for processing data units received from a mobile terminal and sends data unit back to said CN in a reply message (=see par.[0019] and par.[0020]); and

iii. said CN obtains the capability information of said WAP by examining the processed data units in said reply message (=see par.[0019] and par.[0020]).

Regarding **claims 16, 28, and 31**; *Dehner* discloses a method for providing service in a wireless local area network (WLAN) that allows defined WLAN function split between a wireless access point (WAP) and a single or plurality of Control Node (CN) comprising the steps in which:

i. a CN obtaining capability of the WAP (=see par.[0038] and Fig 2, item 211);
ii. said CN negotiating with another one or a plurality of CNs for the supplementary WLAN functions to be provided to the WAP (=see Fig.1, and par.[0016]).

Regarding **claim 24**, *Dehner* discloses a method for providing service in a wireless local area network (WLAN) that allows defined WLAN function split between wireless access point (WAP) and a single or plurality of Control Node (CN) comprising the steps in which:

i. a CN determines a common subset of functionality required for the WLAN available at a subset of the WAPs (=see par.[0030] and par.[0040]);
ii. each WAP of the subset processes the said determined common subset of functionality (=see par.[0040]); and
iii. a CN provides similar subsets of complementary functionality to each of the subset of WAPs (=see par.[0041]).

Regarding **claim 28**, *Dehner* discloses a method for compensating variances in latency in a wireless network comprising the steps of;

bypassing processing of selected functional sub-components at a first network entity and;

performing processing of said bypassed functional sub-components at a second network entity.

3. Claims 17-22 are rejected under 35 U.S.C. 102(a) as being unpatentable over *Knauerhase et al* (2003/0163579 A1) (hereinafter *Knauerhase*).

Regarding **claim 17**, *Knauerhase* discloses a method for carrying out load balancing in a wireless local area network (WLAN) without requiring a mobile terminal to change association relationship with a wireless access point (WAP) comprising the steps in which:

i. the WAP separates the processing function provided to the mobile terminal into an association specific part and a non-association specific part (=see Fig.3, item 302, reads on association, and item 304, reads on non-association);

ii. said WAP negotiates with another WAP of the non-association specific part, and establishes a secure tunnel with said another WAP (=see par.[0016]);

iii. said WAP tunnels the data unit from a mobile terminal to the said another WAP through the tunnel after processing data unit with the association specific part of functions (=see par.[0028]); and

iv. said another WAP receiving the processed data unit through said tunnel and processing it with non-association specific part of functions (=see par.[0028] and par.[0029]).

Regarding **claim 18**, *Knauerhase* discloses a method according to claim 17 further comprising the step in which said WAP uses a wireless channel to establish direct connection with another WAP and sets up secure tunnel over the direct connection (=see par.[0037], wherein the "...send information" reads on direct connection).

Regarding **claim 19**, *Knauerhase* discloses a method according claim 17 further comprising the step in which the WAP decides on whether to tunnel data unit from the mobile terminal to another WAP for non association specific processing by monitoring the load at WAP and comparing it with a preset threshold value (=see Fig.2, item 202, wherein the "Reduced" is understood to be based on the threshold).

Regarding **claim 20**, *Knauerhase* discloses a method according to claim 17 further comprising the step in which said WAP decides on which other WAPs should be used for non association specific processing by monitoring the loads at different WAPs it has connections with and compares them with a preset threshold value (=see par.[0042], wherein the load is monitored at "t" with reads on different WAPs).

Regarding **claim 21**, *Knauerhase* discloses a method according to claim 17 further comprising the step in which a central control entity monitors the load status on all WAPs within a certain domain and mandates distribution of non-association processing function between different WAPs (=see Fig.1, item 118 and 112).

Regarding **claim 22**, *Knauerhase* discloses a method according to claim 17 for the WAP to determine the distribution of non-association specific function based on information, the information comprising:

- i. a size of the data unit to be processed (=see Fig.2, item 202, wherein the “LOAD” reads on data size);
- ii. an expected average time for the processing of the data unit (=see par.[0042]);
- iii. an overhead time for processing the data unit (=see par.[0042]); and
- iv. a weighted sum of above factors (=see Fig.2, item 202, wherein the “LOAD” reads on weighted sum).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN B. BYRD JR. whose telephone number is (571)270-7463. The Examiner can normally be reached on M-F, 7:30am - 5:00pm, EST.

The supervisor, Charles Appiah, can be reached on 571-272-7904, if you are unable to resolve the matter with the assigned Examiner. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOHN B BYRD JR./
Examiner, Art Unit 2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617